

J.G. O'HARA & WILLIBALD PRICHA. *Hertz and the Maxwellians: A Study and Documentation of the Discovery of Electromagnetic Wave Radiation, 1873–1894*. London: Peter Peregrinus Ltd., 1987. Pp. xiv+154. ISBN 0-86341-101-0. £24.00.

The last few years have witnessed an upsurge of interest in the evolution of electromagnetic theory in the last quarter of the nineteenth century. Rather than jumping directly from Maxwell to Einstein, or at least to Lorentz, as was often done in the past, scholars have begun to explore the important developments that took place in the intervening years. The work of the

British Maxwellians has drawn particular attention, and it has become increasingly clear that the theory Maxwell put forth in his *Treatise* underwent deep and important changes before it passed into general circulation in the late 1880s and 1890s. The task of tracing the course of British field theory in this period is still unfinished, however, and that of exploring its assimilation in Germany has scarcely begun. The recent centenary of Heinrich Hertz's 1888 discovery of electromagnetic waves has focused attention on the event that launched this process of assimilation, and we can be glad that it has prompted James O'Hara and Willibald Pricha to produce this documentary study of Hertz's interaction with his British contemporaries.

At the heart of *Hertz and the Maxwellians* are the letters Hertz exchanged with Maxwell's British successors, primarily G. F. FitzGerald, Oliver Heaviside, and Oliver Lodge. The number of letters is not large—there are about thirty-five in all, plus a few short notes—and almost all date from the brief period between 1888 and 1892, but they crystallize a crucial episode in the history of physics and are of unusual value. The seven letters Heaviside wrote to Hertz in 1889 are especially interesting, and together with some extracts from Heaviside's letters to FitzGerald and Lodge, they show that Hertz's theoretical writings probably owed more to Heaviside than has previously been appreciated.

O'Hara and Pricha have arranged their material in separate chapters for each of the main correspondents, so that after a twenty-one page 'Prologue' sketching the course of Hertz's work and its reception in Britain, we are given successive chapters covering his correspondence with FitzGerald, Heaviside, and Lodge, his indirect contact with Kelvin, and his 1890 visit to London and Cambridge. (There is also an 'Epilogue' containing part of Hertz's first essay on electrodynamics, written in 1879.) This arrangement has some advantages, particularly in making it easy to follow each exchange of letters from start to finish. But the division of the chapters by correspondent tends to make the book, as a whole, rather choppy and repetitive; the sequence of events is

obscured, and points that first come up in the 'Prologue' or in the correspondence with FitzGerald have to be dealt with again when they are mentioned by Heaviside or Lodge. Had the letters and the connecting commentary been given in purely chronological order, the reader would be better able to trace the evolution of Hertz's thinking and the reception of his work, and more importantly, would be given a picture of him interacting with the Maxwellian *group* rather than with a succession of separate individuals.

The book suffers from a few of the small errors that bedevil all documentary editors: the letter from Heaviside to FitzGerald quoted on pp. 83–84 should be dated 12 July 1897, not 19 June 1897, and the words transcribed as 'abolish m [?]' and 'vibrations' should read 'abolition' and 'relations'. The system of endnotes and references is also rather awkward, and it is sometimes more difficult than it should be to distinguish the editors' remarks from the text being quoted. However, such minor problems aside, the publication of these letters is very welcome, not least as a possible harbinger of things to come. The Maxwellians left behind hundreds of interesting and informative letters, very few of which have yet seen print. We can hope that this volume will be followed by others in which this rich resource will be brought before a wider audience, and in which scholars will be given the materials with which to produce a fuller and more accurate picture of the work and workings of the Maxwellian group.

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